

Amendments to the Claims:

51. (Currently Amended) A method of detecting at least one hybridization complex comprising a target nucleic acid, said method comprising:

- a) adding a target nucleic acid to an array to form at least a first hybridization complex, said array comprising a solid support having a plurality of regions, each region comprising an electrode and a self-assembled mixed monolayer comprising
 - i) blocking moieties, having a first end attached to said electrode, wherein said blocking moieties shield nucleic acids from said electrode; and
 - ii) at least one modified nucleic acid comprising a nucleic acid and a linker moiety having a first and second end; wherein said first end of said linker is attached to said electrode and said second end is covalently attached to said nucleic acid;

wherein at least two different regions comprise different probe nucleic acids;

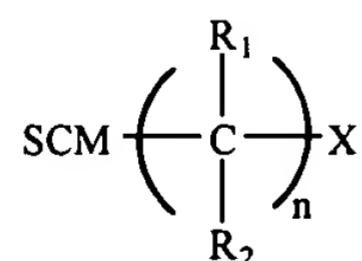
- b) adding an agent that distinguishes between single and double stranded nucleic acids; and
- c) detecting the presence of said first hybridization complex.

52. (Currently Amended) A method according to claim 51, wherein said first end of said blocking moieties is attached to said electrode via a sulfur linkage.

53. (Currently Amended) A method according to claim 52, wherein said first end of said linker is attached to said electrode via a sulfur linkage.

54. (Currently Amended) A method according to claim 51, 52, or 53, wherein said electrode comprises gold.

55. (Currently Amended) A method according to claim 51, wherein said blocking moieties have the formula:



wherein

SCM is a sulfur-containing moiety, wherein said sulfur containing moiety is attached to said electrode;

R_1 and R_2 are independently selected from the group consisting of hydrogen and substituent groups;

n is an integer from 3 to 50; and

X is a terminal group.

56. (Currently Amended) A method according to claim 55, wherein R_1 and R_2 are hydrogen.

57. (Currently Amended) A method according to claim 56, wherein said blocking moieties comprise alkyl groups.

58. 61 (Currently Amended) A method according to claim 54, 55, or 56, wherein n is ≥ 6 .

59. (Currently Amended) A method according to claim 51, wherein said blocking moiety is a branched molecule.

60. (Currently Amended) A method according to claim 59, wherein said blocking moiety is a straight chain alkyl group.

61. (Currently Amended) A method according to claim 60, wherein said alkyl ranges from 1 to 20 carbon atoms.

62. (Currently Amended) A method according to claim 51, wherein said array comprises a plurality of different blocking moieties.

63. (Currently Amended) A method according to claim 62, wherein at least one of said blocking moieties is a branched molecule.

64. (Currently Amended) A method according to claim 66, 62 or 63, wherein at least one of said blocking moieties is an alkyl group.

65. (Currently Amended) A method according to claim 55, wherein for said blocking moiety,
SCM is a thiol containing moiety;
 R_1 and R_2 are hydrogen;
n is 16; and
X is hydroxyl.

67. (Currently Amended) A method according to claim 51, wherein said linker moiety is a straight chain alkyl group.

68. (Currently Amended) A method according to claim 67, wherein said alkyl group ranges from 1 to 20 carbon atoms.

69. (Currently Amended) A method according to claim 51, wherein for said linker moiety,
SCM is a thiol containing moiety;
 R_1 and R_2 are hydrogen;
n is 16; and
Y is oxygen.

71. (Currently Amended) A method according to claim [[70]] 69, wherein R_1 and R_2 are hydrogen.

72. (Currently Amended) A method according to claim [[51]] 55, wherein n is ≥ 6 .

74. (Currently Amended) A method according to claim 51, wherein said blocking moiety comprises a phosphorus-containing moiety.

75. (Currently Amended) A method according to claim 51, wherein said nucleic acid is attached to said linker at a 2' position of a ribose.

76. (Currently Amended) A method according to claim 51, wherein said nucleic acid is attached to said linker at a 3' position of a ribose.

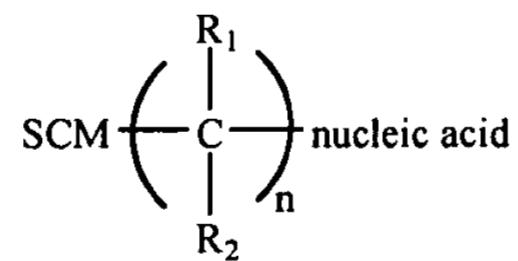
77. (Currently Amended) A method according to claim 51, wherein said nucleic acid is attached to said linker at a base of said nucleic acid.

78. (Currently Amended) A method according to claim 51, wherein said nucleic acid is attached to said linker at a phosphate linkage of said nucleic acid.

79. (Currently Amended) A method according to claim 51, wherein said agent is an intercalating agent.

80. (New) A method of detecting at least one hybridization complex comprising a target nucleic acid, said method comprising:

- adding a target nucleic acid to an array to form at least a first hybridization complex, said array comprising a solid support having a plurality of regions, each region comprising an electrode and a self-assembled mixed monolayer comprising
 - blocking moieties, having a first end attached to said electrode, wherein said blocking moieties shield nucleic acids from said electrode; and
 - at least one modified nucleic acid comprising a nucleic acid and a linker moiety having a first and second end; wherein said first end of said linker is attached to said electrode and said second end is covalently attached to said nucleic acid; and wherein said modified nucleic acid has the formula:



wherein:

SCM is a sulfur-containing moiety, wherein said sulfur containing moiety is attached to said electrode;

R₁ and R₂ are independently selected from the group consisting of hydrogen and

substituent groups; and
n is an integer from 3 to 50; and

wherein at least two different regions comprise different probe nucleic acids;

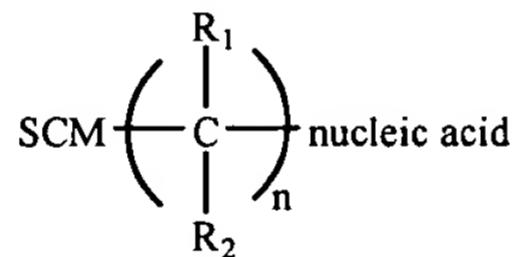
- b) adding an agent that distinguishes between single and double stranded nucleic acids; and
- c) detecting the presence of said first hybridization complex.

81. (New) A method of detecting at least one hybridization complex comprising a target nucleic acid, said method comprising:

a) adding a target nucleic acid to an array to form at least a first hybridization complex, said array comprising a solid support having a plurality of regions, each region comprising an electrode and a self-assembled mixed monolayer comprising

- i) branched molecule blocking moieties, having a first end attached to said electrode, wherein said blocking moieties shield nucleic acids from said electrode; and

- ii) at least one modified nucleic acid comprising a nucleic acid and a linker moiety having a first and second end; wherein said first end of said linker is attached to said electrode and said second end is covalently attached to said nucleic acid; and wherein said modified nucleic acid the formula:



wherein:

SCM is a sulfur-containing moiety, wherein said sulfur containing moiety is attached to said electrode;

R₁ and R₂ are independently selected from the group consisting of hydrogen and substituent groups; and

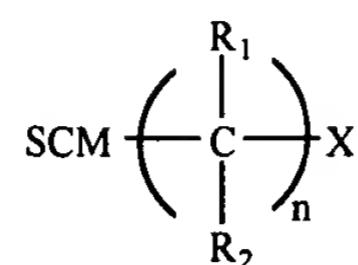
n is an integer from 3 to 50; and

wherein at least two different regions comprise different probe nucleic acids;

- b) adding an agent that distinguishes between single and double stranded nucleic acids; and
- c) detecting the presence of said first hybridization complex.

82. (New) A method according to claim 80 or 81 wherein said first end of said blocking moieties is attached to said electrode via a sulfur linkage.

83. (New) A method according to claim 80 or 81 wherein said blocking moieties have the formula:



wherein

SCM is a sulfur-containing moiety, wherein said sulfur containing moiety is attached to said electrode;

R_1 and R_2 are independently selected from the group consisting of hydrogen and substituent groups;

n is an integer from 3 to 50; and

X is a terminal group.

84. (New) A method according to claim 80, wherein said blocking moiety is a branched molecule.

85. (New) A method according to claim 80 or 81, wherein said array comprises a plurality of different blocking moieties.

86. (New) A method according to claim 80 or 81, wherein for said linker moiety, SCM is a thiol containing moiety;
 R_1 and R_2 are hydrogen;
 n is 16; and
Y is oxygen.

87. (New) A method according to claim 80 or 81, wherein n is ≥ 6 .

88. (New) A method according to claim 80 or 81, wherein said blocking moiety comprises a phosphorus-containing moiety.

89. (Cancelled)

90. (New) A method according to claim 80 or 81, wherein said nucleic acid is attached to said linker at a 2' position of a ribose.

91. (New) A method according to claim 80 or 81, wherein said nucleic acid is attached to said linker at a 3' position of a ribose.

92. (New) A method according to claim 80 or 81, wherein said nucleic acid is attached to said linker at a base of said nucleic acid.

93. (New) A method according to claim 80 or 81, wherein said agent is an intercalating agent.